Decision Support Services to Local NC Emergency Managers

Phil Hysell

Warning Coordination Meteorologist National Weather Service Blacksburg, VA



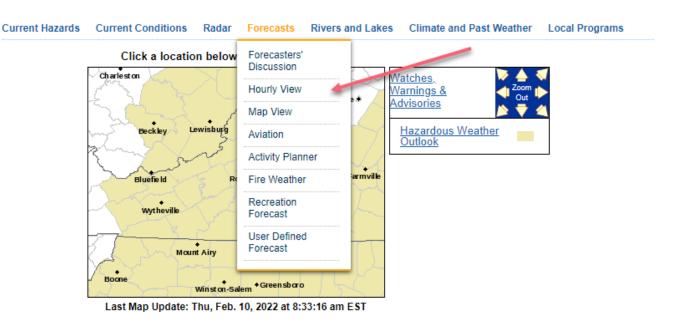
Decision Support for Smaller Events

www.weather.gov

NWS Forecast Office Blacksburg, VA

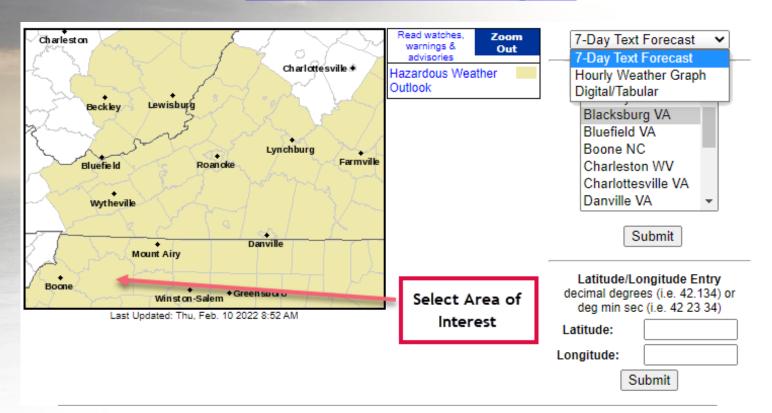
Weather.gov > Blacksburg, VA

Blacksburg, VA
Weather Forecast Office

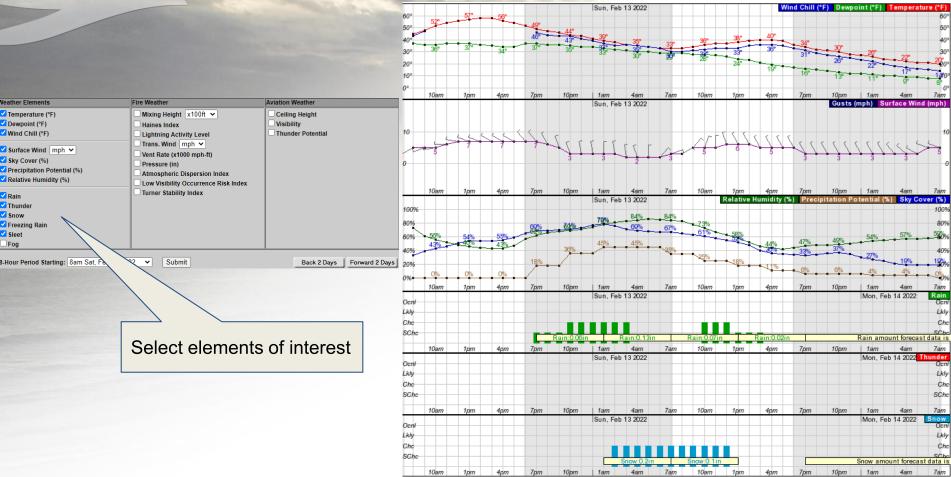


Planned Small Event

www.weather.gov



Planned Small Event



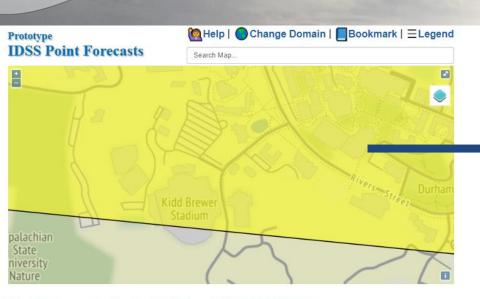
Create Your Own Hourly Weather Forecast

www.weather.gov/forecastpoints



Zoom in, and select your point of interest

Create Your Own Hourly Weather Forecast www.weather.gov/forecastpoints



Wind Advisory in effect until 500 am EST Fri. 2/18/2022

Table updated: 101 pm EST Thu. 2/17/2022 (Last Update: 89 minutes ago)

Click for Text Forecast RNK Forecast Discussion 1 miles W of Boone, NC

| Weekly Summary | Thu Feb 17 | Fri Feb 18 | Sat Feb 19 | Sun Feb 20 | Mon Feb 21 | Tue Feb 22 | Wed Feb 23 |
|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Max Temp, °F | 54 | 53 | 41 | 48 | 55 | 58 | 60 |
| Min Temp, °F | 32 | 29 | 22 | 22 | 31 | 43 | 49 |
| Min Wind Chill, °F | 46 | 20 | 10 | 17 | 27 | 42 | 46 |
| Max Wind, mph | 20 | 25 | 22 | 10 | 9 | 10 | 9 |
| Min Wind, mph | 13 | 10 | 7 | 5 | 6 | 8 | 6 |
| Max Wind Gust, mph | 36 | 43 | 37 | 13 | 16 | 22 | 20 |
| Max Cloud Cover, % | 92 | 93 | 6 | 12 | 85 | 85 | 84 |
| Min Cloud Cover, % | 86 | 9 | 0 | 2 | 16 | 71 | 71 |
| Max Prob. of Precip., % | 87 | 76 | 0 | 0 | 60 | 70 | 70 |
| Max RH, % | 92 | 92 | 68 | 56 | 84 | 91 | 87 |
| Min RH, % | 85 | 59 | 33 | 35 | 57 | 80 | 70 |
| Max Dew Point, °F | 51 | 51 | 17 | 22 | 41 | 50 | 50 |
| Min Dew Point, °F | 47 | 18 | 12 | 10 | 23 | 42 | 43 |

Severe Thunderstorm

Excessive Rainfall

| Day 1 | Day 2 | Day 3 |
|----------|----------|----------|
| Marginal | Not | Not |
| | Expected | Expected |
| Marginal | Not | Not |
| | Expected | Expected |

Hourly Table

| of week: | Thu | rsday | / 2/17 | 7 | | | | | | | Friday | / 2/1 | 8 | | | |
|--------------------|------|-------|--------|-------|--------|-------------|------|------|--------|--------------------|--------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| e: | 2PM | 3РМ | 4PM | 5РМ | 6РМ | 7 PM | 8РМ | 9РМ | 10РМ | 11PM | 12AM | 1 _{AM} | 2 _{AM} | ЗАМ | 4 _{AM} | 5 _{AM} |
| ather: | 98 | 993 | 9 | 98 | 993 | 99 | 993 | 99 | See |) | m | 99 | m | 993 | 98 | 993 |
| perature (°F): | 51 | 51 | 52 | 53 | 53 | 53 | 53 | 53 | 54 | 54 | 54 | 53 | 51 | 48 | 45 | 41 |
| d Chill, °F: | 46 | 51 | 52 | 53 | 53 | 53 | 53 | 53 | 54 | 54 | 54 | 53 | 51 | 42 | 37 | 32 |
| d Speed (mph): | 13 | 14 | 14 | 15 | 20 | 20 | 18 | 20 | 18 | 20 | 20 | 18 | 17 | 18 | 21 | 22 |
| d Gust (mph): | 31 | 32 | 32 | 33 | 36 | 35 | 33 | 35 | 33 | 35 | 33 | 32 | 31 | 32 | 37 | 39 |
| d Direction (°): | 190 | 190 | 190 | 190 | 190 | 190 | 190 | 200 | 210 | 210 | 210 | 230 | 260 | 280 | 290 | 290 |
| d Direction: | t | + | t | t | t | t | + | * | * | * | * | * | - | - | * | * |
| b. of Precip. (%): | 42 | 48 | 53 | 51 | 48 | 61 | 73 | 86 | 87 | 87 | 88 | 76 | 62 | 50 | 48 | 46 |
| b. of Thunder (% |): - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| cip. Amount (in.) | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.10 | 0.12 | 0.14 | 0.14 | 0.14 | 0.14 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 |
| w (in.): | | | 0.0 | | | | | | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| (in.): | | | 0.00 | | | | | (| 0.00 | | | | | 0. | 00 | |
| v Point (°F): | 47 | 47 | 49 | 49 | 49 | 50 | 50 | 51 | 51 | 51 | 51 | 51 | 49 | 46 | 42 | 39 |
| (%): | 87 | 85 | 88 | 86 | 85 | 88 | 89 | 92 | 90 | 90 | 92 | 92 | 92 | 92 | 91 | 90 |
| Cover (%): | 91 | 90 | 86 | 88 | 89 | 91 | 88 | 88 | 90 | 92 | 93 | 93 | 91 | 87 | 88 | 83 |
| | 4 | | | | | | | | | | | | | | | |
| | , | * 0 | onfig | ure I | Plot C | order | | × | % Conf | ☆ Configure | X Configure Plot L | % Configure Plot Look | % Configure Plot Look | % Configure Plot Look | ℃ Configure Plot Look | X Configure Plot Look |

Decision Support for Large Events

Dan River Coal Ash Spill - Feb 2014



- Briefings/Spot Forecasts sent three times a day for over three weeks
- Special website developed with weather/water information specific to this site
- Customized River Forecasts for this site were created by the Southeast River Forecast Center
- feedback from IC: "The forecasts, by all feedback I have gotten, is perfect as is. The IMT members seem to be using the pdf version to print out and attach to various briefs, etc; and they are also keeping an eye on the web page. Thank you and please thank your for their efforts in making that happen"

ASU Football Games



- For the highest attended game of the season, a meteorologist was deployed onsite at Kidd Brewer Stadium to participate in briefings and provide real-time updates.
- Briefings sent to ASU Emergency Management.
- Lightning notifications automatically delivered to ASU Emergency Management.

Autumn Leaves Festival - Mt. Airy, NC



National Weather Service Blacksburg, VA Weather Impact Matrix for Surry County EM Valid: 10/07/2021 08 AM - 10/11/2021 11 PM EDT Call 1-540-553-8900 for additional weather support



| | Thu 10/07 | Fri 10/08 | Sat 10/09 | Sun 10/10 |
|----------------------------|-----------------|-----------------|-----------------|--------------|
| Max Temperature | 72'F | 71°F | 71°F | 75'F |
| Min Temperature | 62'F | 61'F | 59°F | 58'F |
| Temperature | 67°F | 66'F | 65°F | 66°F |
| Heat Index | 72'F | 71'F | 71'F | 75'F |
| Wind Speed | 5 mph | 2 mph | 4 mph | 4 mph |
| Wind Direction | Е | E | NE | NE |
| Wind Gust | 11 mph | 5 mph | 5 mph | 9 mph |
| Chance of Precipitation | 56% | 65% | 63% | 16% |
| Weather | Rain Thunder | Rain Thunder | Rain Thunder | Rain |
| Sky Cover | 84% | 81% | 65% | 36% |
| Rainfall | 0.24 in | 0.77 in | N/A | N/A |

Issued: Wednesday October 06, 2021 05:21 AM

| Threat Level | None | Limited | Elevated | Significant | Extreme |
|-------------------------|---------|----------------|----------------|----------------|---------|
| Max Temperature | ≤80 °F | 80 to 84 °F | 85 to 89 °F | 90 to 99 °F | ≥100 °F |
| Min Temperature | ≤60 °F | 60 to 64 °F | 65 to 69 'F | 70 to 79 'F | ≥80 °F |
| Temperature | ≤80 °F | 80 to 84 °F | 85 to 89 'F | 90 to 99 F | ≥100 'F |
| Heat Index | ≤80 °F | 80 to 84 °F | 85 to 89 °F | 90 to 99 °F | ≥100 °F |
| Wind Speed | ≤20 mph | 20 to 29 mph | 30 to 34 mph | 35 to 39 mph | ≥40 mph |
| Wind Gust | ≤25 mph | 25 to 29 mph | 30 to 57 mph | 58 to 73 mph | ≥74 mph |
| Chance of Precipitation | ≤15 % | 15 to 24 % | 25 to 54 % | 55 to 74 % | ≥75 % |
| Sky Cover | ≤20 % | 20 to 39 % | 40 to 59 % | 60 to 79 % | ≥80 % |
| Rainfall | ≤0.1 in | 0.1 to 0.99 in | 1.0 to 2.99 in | 3.0 to 4.99 in | ≥5.0 in |

- Over 250,000 people attend this event.
- Briefings sent to Surry County Emergency Management.
- Lightning notifications automatically delivered to Surry County Emergency Management.
- Meteorologists call Surry County EM when specific triggers are met (lightning, warnings, winds, heat index values, etc.)

Requesting Support for Large Events - RNK



- Briefings/Notifications/Alerts can be provided to EM ONLY for events with several thousand people.
- Please submit your request at least a week before the event.
- Use your hazardous weather plan to know what triggers you want alerted (e.g. tents downed at 30 MPH winds, heat index value thresholds, lightning distance triggers, etc.)

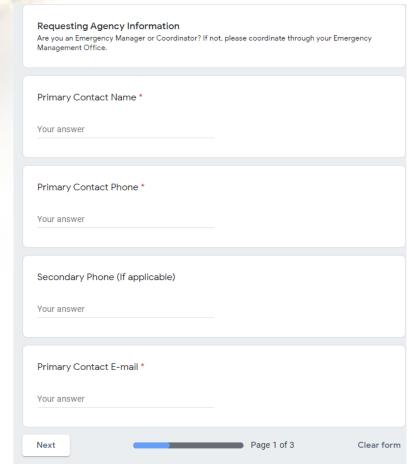
Requesting Support for Large Events - RNK



Last Man Undate: Thu Ech 40 2022 at 40:04:45 am EST

Requesting Support for Large Events - RNK

- Complete this online form
- NWS will respond in a few days
- Please provide at least one week notice
- Each NWS office has a different method of requesting this support
- When in doubt, call your local NWS office



Lightning Notification Example - RNK

no-reply@earthnetworks.com

to me 🕶

Notification Rule: Ltg proximity

Lightning alert within 8mi 20min

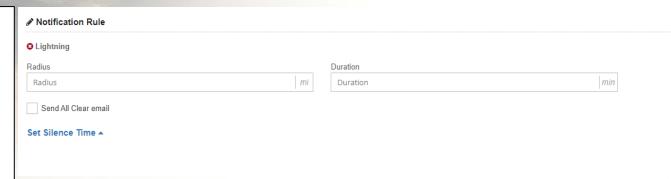
Lightning Distance: 7.35 miles

Stroke Location: Lat: 36.902 Lon: -80.403

Type: IC

Peak Current: +4.607 kA

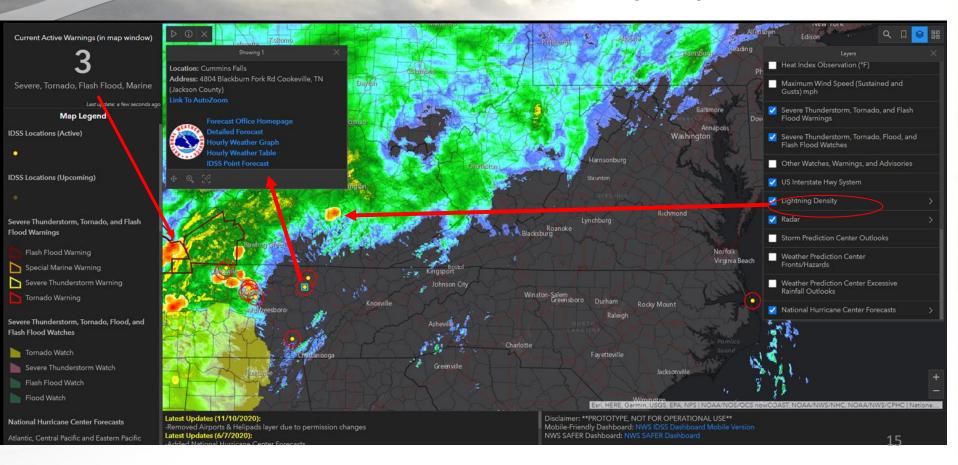
Activated Time: 07/26/2021 05:37:05 PM EDT



Lightning strike damages Pilot Mountain church

O June 2, 2019 å mtairynews ▷ News, Top Stories ○ 0

Situational Awareness Display - RNK



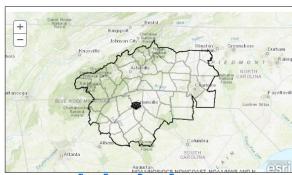
WFO GSP

weather.gov/gsp/dssrequest

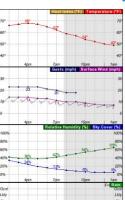
NWS Greenville-Spartanburg SC Decision Support Services Request Please use this form if you are requesting Decision Support Services (DSS) for an event or exercise set to occur in the coming weeks to months. If you need immediate DSS for an event currently ongoing or set to occur within the next 48 hours, please call our office. trisha.palmer@noaa.gov (not shared) Switch account * Required Event Name * Your answer Requesting entity (City, County, Group, etc.) * Your answer Provide street address, building, city, state, etc., if possible. If further details are pending, at least provide County, City and/or State. Your answer

| Type of Event * |
|---|
| Routine Local Event (festival, sports, etc) |
| Exercise |
| Search and Rescue |
| O Support before or after a major weather event |
| National Special Security Event or SEAR 1-3 |
| Misc. HazMat |
| Airborne Release (Chemical/Bio) |
| HazMat release in stream |
| O Nuclear incident |
| ○ Fire |
| |
| Type of Decision Support Requested * |
| On-Site (NSSE or SEAR 1-3) |
| Remote from NWS Greenville-Spartanburg Office |
| Other: |
| |

Special Event Forecast DSS Forecast Graphics Updated At: 03/21/2022 11:31AM



Radar Warnings Watches Lightning Density

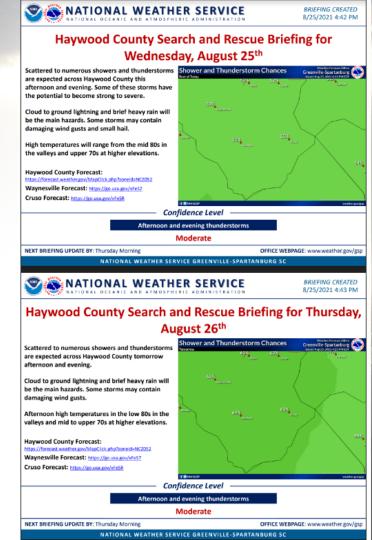


Threat Table

| Key: 0 1 2 3 4 | Thu Afternoon | Thu Night |
|-------------------------------|--------------------|---------------------|
| Ice/Freezing Rain (Amount) | 0.0 | 0 |
| Snow/Sleet (Amount) | 0.0 | 0 |
| Min Wind Chill | 62 | 57 |
| Peak Wind (mph) | 13 gust 23 (SW) | 10 gust 18 (WSW) |
| Severe Storm Threat (0-4) | 0 | 0 |
| Lightning Probability(%) | 1 | 0 |
| Fire Danger (0-4) | 0 | 0 |
| Fog (Min Visibility) | - | |

WFO GSP

- Routine support/planned events
 - Char-Meck (events at Bank of America Stadium)
 - Annual Events (e.g., Grandfather Mountain Highland Games)
 - Community events/festivals
 - Polk NITC
 - Upcoming: President's Cup
 - Got something you want to discuss? Call me!
- Emergency Support
 - SAR, spots
 - Post-event (Haywood County)
 - Need support? Call us!



WFO GSP





We love our partners at @NWSGSP who are always there to support us through incidents and planned events. They're here in our EOC supporting our activation & monitoring local weather. Thanks for helping keep Charlotte-Mecklenburg safe!



3:16 PM - Aug 22, 2020 - Twitter for iPhone

WFO Morehead City

To request support erik.heden@noaa.gov or wxobs.mhx@noaa.gov or call 252 223 5737 EXT 6



Weather Briefing #1

Wind Gusts Over 40 MPH Likely/Strong Thunderstorms Possible

Forecast

Saturday: Windy with showers and thunderstorms especially through early afternoon. Some storms may be strong. High 68 in the morning, temps fall into the 50s by late afternoon. Southwest winds 25 to 35 MPH, gusts to 46 MPH.

| Time | Temp | Precipitation Chance | Weather and Wind |
|----------------|---------|-------------------------|--|
| 8 AM | 65 | 91% | Showers with a chance of thunderstorms. Southwest 25 MPH, Gusts to 40 MPH. |
| 10 AM | 67 | 93% | Showers with a chance of thunderstorms. Southwest 30 MPH, Gusts to 46 MPH. |
| Noon – 2 PM | Mid 60s | 74% | Chance of Showers and Thunderstorms. Southwest 30 MPH Gusts, to 46 MPH |
| 4 PM | 53 | 45% | Chance showers. West 25 MPH, Gusts to 36 MPH |

Links to Location Specific Forecasts

Emerald Isle:

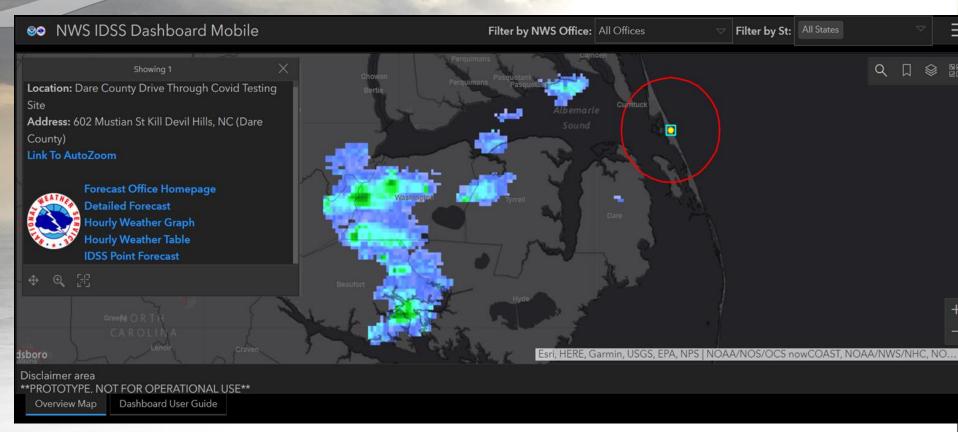
Point Forecast | Hourly Weather Graph
Weather Table | Monitor Forecast



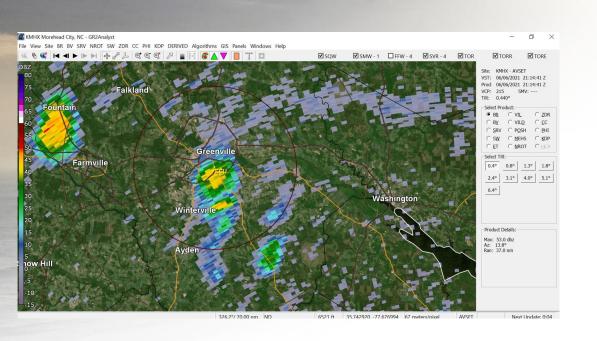
Briefing provided for Carteret County Emergency Management.

For the latest updates, please visit our website via the links above

WFO Morehead City



ECU NCAA Baseball Tournament Spring 2021



- 5 Day event, practices/games
- Briefings sent to ECU Emergency Management.
- On site support during two days of active weather

 Lightning and heavy rain main thresholds of concern.

ECU Home Football Games



- Multiple games each fall for a few years now.
- Briefings sent to ECU Emergency Management.
- Usually remotely supported unless weather is active.
- Lightning and heavy rain main thresholds of concern.

Outer Banks Seafood Festival



 Provided on site support fall 2021 and 2019.

- Briefings sent to Dare County Emergency Management.
- Wind a concern (tents) along with lightning, rain.
- Provide multiple remote support and briefings throughout the year

WFO Raleigh

To request support
Weather.gov/Raleigh/support

Direct questions to Nicholas.Petro@noaa.gov or call Nick at (919) 326-1047



Requesting Support from WFO Raleigh

Weather.gov/Raleigh/support



| Decision Support Services Request Form National Weather Service, Raleigh, NC |
|---|
| ** FOR OFFICIAL GOVERNMENT SUPPORT ONLY ** |
| Please use this form to request weather support from the NWS Raleigh, as it relates to central North Carolina weather. NWS Raleigh can provide either remote or on-site weather support. Once a request for weather support is received, a Meteorologist from our office will reach out to you to finalize details. Timing may vary depending on the current weather situation. For immediate assistance, or if you haven't heard back about your request, please contact the NWS Raleigh via our operational hotline. Requests should be given at least a week in advance when possible, with additional time likely need to accommodate an on-site Meteorologist for support. Eligibility: This weather support is available to NWS core partners, such as emergency managers, community leaders, other government agencies, and the media. Please note that |
| managers, community leaders, other government agencies, and the media. Please note that the general public and private sector businesses are not eligible for this service. |
| nicholas.petro@noaa.gov Switch account |
| * Required |
| Email * |
| Your email |
| |
| Requesting Agency Name * |
| Your answer |
| Agency Primary Contact Name * |
| Your answer |

Types of Support

- Email list / Briefings: Email <u>Nicholas.Petro@noaa.gov</u> to get on the email list.
- Old-fashion phone support: See Nick for the back-line phone number to NWS Raleigh.
- Routine and high-impact weather briefings and virtual meetings.
- Conference calls: NWS meteorologists available to attend your agency's internal conference calls.
- **Remote iDSS**: NWS Raleigh meteorologists can provide weather briefings via phone calls (inbound or outbound calls), online webinars, and email briefings. The types of events that "remote iDSS" works well for include: large public gatherings, large fairs or community events, and natural or manmade hazmat incidents, among others.

Types of Support Continued

- On-site iDSS: NWS Raleigh meteorologists can provide weather briefings on-site and in-person via deployments to an emergency operations center or command post near an incident or event. The types of events that "remote iDSS" works well for include: very large public gathering or incidents where the potential public hazards and risks, and number of people involved, warrant having instant on-site weather briefings. The types of weather events that are particularly useful to have an on-site meteorologist include hurricanes, winter storms, large-scale severe weather outbreaks, and major flooding events.
- Recurring iDSS: NWS Raleigh meteorologists provide ongoing support throughout the year with pre- seasonal meetings, functional and tabletop exercises, weather training and preparedness outreach; or support for routine/high-value decisions.

We are staffed up to help you when it's needed the most! Don't hesitate to call!





17 brilliant meteorologists under one roof, ready to help you at a moments notice!

Remote Weather Support



On the right: NWS Raleigh continues to provide severe weather updates to our local, state and federal partners. Here at NWS Raleigh, WCM Nick Petro is providing a briefing to the command center at the FEMA COVID19 Greensboro Community Vaccination Center in Greensboro, NC.

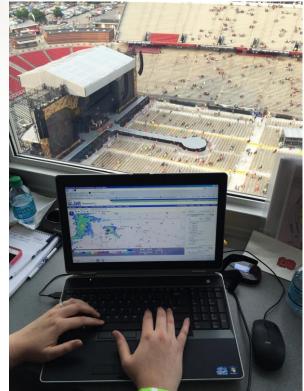
We are on the VIPER system, and can provide weather support with the simple push of a button!



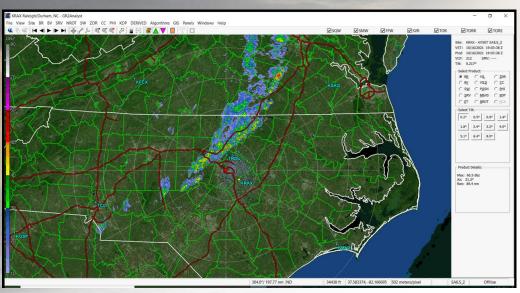




On-Site Weather Support



On-Site Support Case Study 2021 North Carolina State Fair



"the National Weather Service staff were instrumental in the success of the fair being one of the safest on record."

-Chief Chip Hawley, State Capital Police





Tabletop Exercises



NWS Raleigh's Nick Petro and Brandon Locklear (standing on left) are participating in the **Planetary Defense Interagency Tabletop Exercise** in Winston-Salem this past February with a number of City, County, State, and Federal partners. One of many ways we strive to build a Weather Ready Nation!

Thank you!

- Please let us know how we can help!
- Participating/Preparing materials for exercises.
- Support for HAZMAT incidents, including plume forecasts.
- Presentations at your LEPC meetings.
- Climate data for grants (e.g. frequency of weather events/warnings issued)

